CORRES. CONTROL
OUTGOING LTR NO.

DOE ORDER #
93 RF/J376

DIST.	LTR	ENC
AMARAL, M.E.		
BENEDETTI, R.L.		
BENJAMIN, A.		
BERMAN, H.S.		
BRANCH, D.B.		
CARNIVAL, G.J.		
COPP, R.D.		
DAVIS, J.G.		
FERRERA, D.W.		
HANNI, B.J.		
HARMAN, L. K.		
HEALY, T.J.		
HEDAHL, T.		
HILBIG, J.G.		
KIRBY, W.A.		
KUESTER, A.W.		
MANN, H.P.		
MARX, G.E.		
McDONALD, M.M.		
McKENNA, F.G.		
MONTROSE, J.K.		
MORGAN, R.V.		
POTTER, G.L.		
PIZZUTO, V.M.		
RILEY, J.H.		
RISING, T.L.		
SANDLIN, N.B.		
SETLOCK, G.H.		
STEWART, D.L.		
SULLIVAN, M.T.		
SWANSON, E.R.		
WILKINSON, R.B.		
WILLIAMS, S. (ORC)		
WILSON, J. M.		
WYANT, R.B.		
Hutchins, NM	X	X
Klein, MD	X	X
Greengard, TC	X	X
Dille, A	X	X
Madl, RL	X	X
Primrose, AL	X	X
Thompson, T	X	X
Zagabay, M	X	X
CORRES CONTROL	X	X
ADMIN RECORD		
PATS/T130G		
TRAFFIC		

CLASSIFICATION:

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UNCLASSIFIED		
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER SIGNATURE
DOCUMENT CLASSIFICATION REVIEW WAIVER PER CLASSIFICATION OFFICE
DATE

IN REPLY TO RFP CC NO:
N/A

ACTION ITEM STATUS
☐ PARTIAL/OPEN
☐ CLOSED

LTR APPROVALS:
AE

ORIG & TYPIST INITIALS
REM/cet

RF-46469 (Rev. 7/93)

000009385

EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

ADMIN RECORD

September 14, 1993

93-RF-11376

Richard J. Schassburger
Acting Director
Environmental Restoration Division
DOE, RFO

Attn: S. R. Grace

OPERABLE UNIT NO. 2 SUBSURFACE INTERIM MEASURE/INTERIM REMEDIAL ACTION MILESTONE MEETING - TCG-171-93

A meeting was held September 8, 1993 between the Department of Energy/Rocky Flats Office, the Environmental Protection Agency and EG&G Rocky Flats, Inc. to discuss the Impact of Non-Aqueous Phase Liquid (NAPL) Contamination on the Operable Unit No. 2 Subsurface Interim Measure/Interim Remedial Action Soil Vapor Extraction Pilot Project. Attached are meeting minutes and a packet of information presented at the meeting.

If you have any questions regarding these minutes, please call me at extension 6959.

T. C. Greengard
Manager
Environmental Engineering & Technology

REM:cet

Orig. and 1 cc - R. J. Schassburger

Attachments:
As Stated (2)

DOCUMENT CLASSIFICATION
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BZ-A-00170

Minutes From a Meeting to Discuss
the Impact of Subsurface NAPL Contamination on the
OU2 Subsurface IM/IRA Soil Vapor Extraction Pilot Project
With DOE/EPA/EG&G 9/8/93

Attendees	Organization	Ph. Number
Gary Kleeman	EPA	294-1071
Scott Grace	DOE-RFO	966-7199
Michael Klein	EG&G	966-6950
Annette Primrose	EG&G	966-8618
Eric Dille'	EG&G	966-8684
Todd Trangmar	EG&G	966-3855
Robin Madel	EG&G	966-6972

Attachments:
Packet of presentation material.

The meeting focused on the schedule delays incurred during the implementation of the OU2 Subsurface Soil Vapor Extraction (SVE) Pilot Project. A delay of 7 working days was incurred to the drilling program when free flowing sands were encountered by the driller during the installation of the vapor extractions air injection and pressure monitoring wells. A delay of 3 working days was incurred when Non-Aqueous Phase Liquids (NAPLs) were encountered at significant concentrations in a well. The well was abandoned and a new well was drilled. The presence of NAPLs creates several operational and safety concerns for the operation of the SVE Pilot Project at the current Site #1-IHSS 110.

If the SVE system is operated using the current configuration and with the concentrations of contaminants obtained from the NAPL pool, Volatile Organic Compound (VOC) breakthrough from the gracnular Activated carbon (GAC) adsorbers (the current off-gas treatment method) is expected within 5 hours. Also, significant VOC loading on the GAC may create an exothermic reaction which could potentially present a fire hazard within the GAC adsorbers. A schedule delay of five weeks to the current September 15, 1993 IAG milestone was requested to evaluate the existing technology with respect to these concerns.

Action Items Identified:

- EG&G (Michael Klein) will provide EPA with the following information:
  - The calculation used to convert ppm (by volume) to mg/L
  - The calculations used as the design basis for the volume of GAC used
  - The upper and lower limits of the range of concentrations that the GAC is designed to treat
  - All calculations will be in consistent units to avoid confusion
- EG&G will provide cross-sections of the wells showing sands with some discussion of permeability in the results report for Site No. 1.
- DOE and EG&G will contact EPA for a conference call at 11:00 on Monday, September 13, 1993, to discuss the action items listed above and the five week delay requested by DOE

PRESENTATION:

•milestone-September 15, 1993-System start-up
•delays
-Free-flowing sands-7 days
-NAPLS in well-3 days
•IRAP chose SVE as an in-situ process
•based on RI data GAC was chosen as off-gas treatment
•based on PCE alone (2 samples were taken that show high concentrations of PCE-124 mg/L), GAC will show breakthrough in 4.5 hours
•the GAC operation time was calculated based on an EPA empirical model
•the GAC was originally designed to last through the duration of Site #1 testing
•there is also the potential for a significant fire hazard in the GAC units

•EG&G presented 2 options
-Stay at the current location but modify the off-gas treatment system (6-9 months)
-Move to a new site (probably 111.1) with no modifications to the system (4-6 months)
•construction at Site #1 would continue under either option

DISCUSSION:

KLEEMAN: Would we expect to use GAC at Site #1 (IHSS 110) in the Future?
GRACE: We would have to use a different off-gas treatment method.

KLEEMAN: The calculations for GAC breakthrough look valid but they are based on assumptions. Why can't the Soil Gas Survey (SGS) crew take readings at IHSS 110 where the PCE is? Why can't they use the observational approach to determine the concentrations more accurately?
KLEIN: The maximum depth we took was 5 feet. We can go further but it changes the scope of work.
KLEEMAN: We should have more samples. That's the observational approach. Will there be significantly greater concentrations when the SGS goes deeper than 2-3 feet?
KLEIN: Yes. The calculations we have done are based on PCE only. There are other compounds that we will encounter.

GRACE: The concentrations are too high to just go out and start working. We would like five weeks to figure out what to do with the NAPLs.
KLEIN: We will complete construction at Site #1, but we don't want a fire or breakthrough.

KLEEMAN: The Decision Document (DD) presents a concentration in ppb and we have 10 ppm. Also the DD says that high concentrations (greater than 1 ppm) is good and that there will be multiple VOCs.
KLEIN: The DD units are different than the units presented here. The units presented here are vapor phase concentrations. Also, the DD presents an estimation of mass removal.
GRACE: There should be some basis for GAC usage in the DD.
KLEIN: That design was based on air flow alone.

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Scott Grace informally transmitted a final version of the Implementation Plan to Gary Kl

KLEIN: The DD does not present any concentrations for the design basis for GAC use. We h estimations that we used for calculations. They were based on 100 ppm volume which is different from mg/L.

KLEEMAN: We don't want to get almost through and find high concentrations and be unable continue our work. What do you (EG&G) think you will do? Can you make simple modifi and finish the Site #1 treatment?
KLEIN: There would not be a "simple" modification.

KLEEMAN: What will happen in 5 weeks?
GRACE: We will determine what is appropriate for Site #1 or where we should move.
KLEIN: We will come back to Site #1 but we have the wrong off-gas treatment. A new sit demonstrate proven performance then we can provide thermal treatment on higher concentrations.
GRACE: We can make IHSS 110 Test #2 and we can run it for a longer time with as much remediation as possible.

KLEEMAN: What are the upper and lower bounds of the concentrations with the current configuration?
KLEIN: I don't know. I will have to provide you with that information.

KLEEMAN: Are the SGS results much higher than at other sites?
GRACE: Yes. We moved to this site to get higher concentrations. Initially there was free p in the trench.

KLEEMAN: Would it be useful to start-up, run the GC but not the GAC, determine the concentrations, then shut-down? Can you see the peak as it is coming through?
GRACE: Isn't this part of our SO testing?
KLEIN: No. The SO testing is not actual operation in a contaminant loading sense.

KLEEMAN: I think we should consider this option as one of our primary alternatives.
KLEIN: We could take several samples and see what happens, but this would burn up 15 n worth of our carbon.
GRACE: This might limit our ability to test (use the GAC) at another site.

KLEEMAN: I think we want to go ahead if possible. How close are we?
KLEIN: By October 1 we can turn the system on. By October 15 we can run Test 1-the 24 test-to get a mass removal curve.

KLEEMAN: Were there sands in the alluvium? What will the permeability of sands in the alluvium be? Will they slow down movement of the NAPLs?
KLEIN: All of the assumptions made about permeability were middle of the road. I don't kn impact of permeability on the NAPL movement.

GRACE: Where do we go from here? Do we get the 5 week extension?
KLEEMAN: I'm not sure now. There are some reasons to grant an extension and some reas to grant it.

BRIEFING ON THE STATUS OF OU2 SUBSURFACE IM/IRA TO EPA, CDH

SEPTEMBER 8, 1993

M. D. KLEIN, EG&G
S. R. GRACE, DOE

EG&G ROCKY FLATS

Schedule Status

- Schedule delays have occured due to :
  - Free Flowing Sands (7 Days)
  - Presence of Non-Aqueous Phase Liquids (3 Days)
- A Schedule delay of 10 days has occured

NAPLS AND THEIR EFFECT ON THE IM/IRA

- Technology being implemented at OU2 is Soil Vapor Extraction (SVE)
- Vapor Phase Granular Activated Carbon (GAC) currently the Off-Gas Treatment System
- Based on Tetrachloroethylene (PCE) alone the capacity of the GAC is calculated to be 4.5 Hours
- Potential fire hazard in the GAC Adsorbers due to the Exothermic Reaction

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IM/IRA PRIMARY TEST OBJECTIVES

- Aid in the selection and design of final remedial actions at OU2

IMPACT OF NAPLS TO THE IM/IRA

- **INADEQUATE GAC CAPACITY RESULTS IN THE IM/IRA NOT MEETING TEST OBJECTIVES:**

- **RECOMMEND RE-EVALUATION OF THE IM/IRA TO:**

  - **ALTERNATIVE SITE LOCATION FOR SITE 1**

  - **REDESIGN OF THE SVE SYSTEM e.g., MODIFICATION OF THE OFF-GAS TREATMENT SYSTEM**

  - **ALTERNATIVE TREATMENT OF NAPL MATERIAL**

TWO TENTATIVE OPTIONS FOR THE OU2 IM/IRA

- No Move, Modify off-Gas Treatment
  - time required 6-9 months
- New test site, no modification
  - Time requried 4-6 months

THINGS TO BE DONE

- Revise Test Plan
- Implementation Plan
- Rediness Review
- Shop operational testing plan
- Rocky Flats permit(s)
- New scope of work

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IM/IRA Schedule Delay Request

REQUEST A 5 WEEK DELAY TO THE IM/IRA FOR:

- Evaluation of alternative off-Gas Treatment System(s)
- Coordination with EPA/CDH on alternatives
- Presentation of schedules for the site, off-Gas Treatment for alternatives

Schedule Delay Request Cont'd

- During this 5 Week delay to evaluate the alternative construction of the current IM/IRA Configuration will be completed

- After 5 weeks, we will present a new schedule, incorporating agreements on what we are going to implement